PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Boston Society of Natural History.—November 5th.—Mr. G. H. Barton read a paper on the "Drumlins of Massachusetts"; Prof. F. W. Putnam spoke on the "Archeological Explorations in Ohio during the Past Season." November 19th.—Mr. Nathan Appleton read a paper on "Santo Domingo." December 3d.—Dr. J. Walter Fewkes spoke of "The Summer Ceremonials of the Zuñi Indians: a Study of Aboriginal Religion."—J. WALTER FEWKES, *Secretary.*

Biological Society of Washington.—November 1st, 1890.—Mr. F. V. Coville spoke of the fruiting of Ginkgo at Washington. This tree has only rarely fruited in America, due to the fact that it is dicœcious, and the staminate tree only is planted. A large specimen was referred to as growing on Analostan Island, near Washington. This tree is probably as old as any in this country, and is about three feet in diameter. The fruit described by Mr. Coville resembles a plum in general appearance, having a soft pulp surrounding a hard nutlet. The morphology of the fruit was explained, it being really a naked seed, the outer part soft and pulpy, the inner hard and nut-like. The fruit represents a single female flower with a single bract. The seed contains a large amount of albumen surrounding the embryo, which is dicotyledonous, and not polycotyledonous as in most conifers. The embryo grows after the seed is mature, and often even after it has fallen to the ground. In Japan the nutlet is eaten like the piñons of the western part of our country. The pulp has the disagreeable odor of sour paste.

In speaking of the mode of growth of the Ginkgo, Dr. C. V. Riley referred to the difference in appearance between trees in the agricultural grounds and others he had seen in Europe. The former were pyramidal, but the latter branched more widely and looked like oaks. He also said the species was, so far as he knew, entirely free from insect pests, and on this account was valuable as a shade tree.

Mr. Coville also spoke of its value as a shade tree, as it would grow in the sooty atmosphere of towns, and it was not affected by any fungus diseases.

Dr. George Marx spoke at some length on the poison glands of the genus of spiders Latrodectus. His investigations were undertaken in consequence of the accounts received of the serious effects of the

bite, a man having died in twelve hours after being bitten by one. That the poison was useful to the spider in killing its prey was unquestioned, but that it was powerful enough to cause the death of a man was considered doubtful. The mandibles are hollow, and from apertures near the end the poison is ejected. This poison is contained in a poison sac lying above. It varies in shape in different species, and is squeezed out by muscular contraction. The gland in the genus under consideration is very small, averaging 2 mm. long and 2 mm. wide, with a capacity of .07 cubic mm. The poison is clear, viscid, and has an acid reaction. It frequently becomes turbid. It will not mix with water, but remains in the form of granules.

Latrodectus lives under stones, and spins no web. Unlike most spiders, it drinks no water, and has a great dislike of it. If a drop be placed upon its back it goes almost into spasms, and for hours afterwards tries to brush the water off. Water destroys the poisonous qualities of the poison. In pursuing its prey in a glass jar it was seen to crawl up the sides and from its spinnerets eject several drops of a viscid fluid. The prey having been bitten, is left, and the spider returns and devours the fluid previously ejected. As to the poisonous effects of spiders' poison, it was stated that a rice bird died in seventeen seconds after having been bitten by the Mygale, or bird-catching spider. Another died in thirty seconds. Experiments to test the poison of Latrodectus were all negative, neither a rabbit, a guinea-pig, nor a mouse being affected in the slightest. The idea that spiders of this genus are capable of inflicting bites severe enough to be harmful is very widespread, but Dr. Marx regarded it as a superstition with little real foundation.

Dr. C. V. Riley stated that he believed there was some truth in the accounts of injury by spider-bites. Some cases are too well authenticated to be doubted. He referred to the different effects a bite or a sting might have upon different persons, and while one would be unaffected, another might be very seriously poisoned. He spoke of a friend who was at one time noted for his skill in handling bees, and he was never stung. But on one occasion he was stung, and so severely that he came near dying. After that he could not go near the bees without being stung and being poisoned by it.

Dr. Theobald Smith stated that the effect of poison was somewhat analogous to that produced by bacteria. It was commonly supposed that diseases were caused by the rapid and excessive multiplication of bacteria. This seems to be a mistake, and it is to a poison produced during the increase of the bacteria that the ill effects are due. Ani-

mals can be innoculated with rattlesnake poison, and can eventually be bitten and experience no bad effects.

Prof. Joseph F. James read a paper upon "Fucoids and Other Problematic Organisms." He referred to his studies of the problematic organisms. He did not consider that the absence of carbonaceous matter was any evidence in itself that the forms were not Algæ. Under the head of "Probabilities of Preservation of Algæ" he referred to the structure and place of growth of sea-weeds, and quoted Lesquereux's opinion that the plants are very rarely preserved, stating further that the strata containing the problematic organisms contain no fossil shells in anything like a perfect condition. Fragments are found in quantities, and if calcareous organisms are destroyed cellular Algæ would stand a much poorer chance. The exposed beaches would, however, be in an admirable position to retain raindrop impressions, mud cracks, and other inorganic markings, as well as worm burrows or trails made by shells or crustaceans. Under the head of "Distribution in Space and Time" he briefly outlined the localities and the formations in which various genera occur; and under the head of "Value in Correlation" spoke of Scolithus as having been largely used to characterize the Potsdam, whereas it occurs in Lower Cambrian, Calciferous, and Medina strata also. He did not regard the problematic organisms as of value *by themselves*, but taken in connection with lithology, stratigraphy, sedimentation, and the presence of undoubted organic remains, they might be of some use. He could see no objection to the naming and description of the forms if they were regarded as crustacean, or Annelid trails or borings, or as of inorganic origin; but he thought they should not be referred to the Algæ when they had no affinity to plants.

November 15th, 1890.—Dr. C. Hart Merriam gave a short account of some of his experiences during the past summer in the cañon and lava beds of the Snake River country, Idaho. The lava beds are many hundreds of miles in extent to the north of the river, but are much smaller on the south. The country is peculiar and forbidding in aspect. Two or three buttes are known in the region, one of which is a great volcanic cone over 2,000 feet high. Lava flows and ridges are frequent, some of the former having a very recent aspect, the twists and bubbles of the lava being still plainly visible. The crust of the bubbles is a foot or two thick, and as it is liable to break at any time and allow the horse or the man to tumble into the hollow below, traveling is difficult and tiresome. The lack of water renders parts of the country almost inaccessible, and the heat in summer is intense.

Many animals live in the caves formed by the lava bubbles, there being hundreds and thousands of these.

The Snake River cuts into the lava field to a depth of 800 feet. The cliffs are of black lava, very dark, and make the cañon look deeper than it really is. The cliffs are frequently perpendicular, and are without vegetation. The lava rests upon a limestone. Shoshone Falls was referred to as very grand and beautiful, the water falling in one drop 210 feet, but having a total fall of 250 feet. A few miles above is another fall 175 feet high, and many cascades and rapids render the river unnavigable. Where vegetation is possible on the lava beds it consists almost entirely of sage bush (*Artemesia tridentata*) and several species of the so-called greasewood. Many springs are found along the base of the cliffs in the cañon, the water of these being relatively warm. Some of them are very large; four or five are even twenty feet across.

Among the insects is one known as the "Idaho Devil," about two and one-half inches long, as large as one's finger, and with a large head. It is extremely ferocious. Ants are also abundant. Some of them build nests or hills five or six feet high, made entirely of sticks, all of the same size and length; other kinds make hills of stones, these being also all of the same size. The ants hibernate in cold weather. A few birds are found, the most abundant being the sage sparrow. Mountain mocking birds, magpies, ravens, eagles, burrowing owls, ground doves, rock wrens, and cañon wrens also are found. The last, though only about as long as one's finger, has a piercing cry that can be heard several miles.

Among animals, coyotes and rabbits abound; of the latter there are four or five species. In the cañons in winter antelope and black-tailed deer are found, while panthers, badgers, wood-rats, mice, porcupines, and others live in the cañon all the year. Horned toads and rattlesnakes also frequently occur.

Mr. Theodor Holm spoke of the vegetative reproduction of *Dicentra cucullaria*. This plant is peculiar from having at the base a number of round, bulb-like bodies, which have been generally described as tubers. They are not really such, but are buds, producing late in summer or early fall, from a small depression at one end, a branch with several leaves. They are in one sense equivalent to the bulbous bases which the leaves of certain species of plants have.

Dr. W. H. Dall made some remarks upon the paleontology of the northwest coast of the United States. Certain specimens of Tertiary fossils in the collections of the Wilkes Exploring Expedition were

from unknown localities, and it was desirable to ascertain, if possible, the exact horizon whence they came. Astoria was the first place visited. It was described as being peculiarly situated, a portion being built upon the bluff overhanging the Columbia River, and the other portion occupying a narrow beach along the margin of the river. The latter part was largely built upon piles, and streets and houses extended out over the water. The houses at the foot of the bluff frequently extended into its face. The top of the bluff is covered by about six feet of basalt, below which lie Tertiary strata, layers of brown sandstone, and many nodules or concretions containing fossils. The Miocene sandstone is underlaid by Eocene limestone, in a layer about one foot thick. It was from this layer that many of the fossils were collected by the Wilkes Expedition, but it is now covered by the piles and streets and houses of the town, and is inaccessible.

The Plistocene strata on the coast rise gradually toward the south until at Monterey and south it is about six hundred feet above sea-level. The Oregonian forms are those of species living at present to the north in the colder waters of the Arctic regions; while the forms at the south are those living at present in the neighboring sea. The large lake basins of the Cascade region were referred to, many of them being occupied at present by small bodies of water more or less alkaline. Those having outlets, and consequently fresh, have a large fauna, while the alkaline lakes have no animals living in them of consequence. In marl along the Klamath Lake shells are found which live to-day in the neighboring water. But among them are some not now known to occur in a living state. Among these are species of Vivipara and Unio. These genera, though very abundant in the Mississippi valley, are unknown in a living state west of the Rocky Mountains, though they occur as fossils as early as the Laramie period. It is an interesting problem to decide why some genera should become extinct while others in the same localities lived on.

Reference was made to Stockton in the Sacramento valley, where a boring revealed gas in sufficient quantity to heat and light a large house. The city has put down numerous artesian wells, and the water thus obtained is used for domestic purposes. Some of the wells are 2000 feet deep, yet in no instance was solid rock encountered. It was all detrital material, generally coarse sand or clay. In one locality a bed of cobblestones was encountered of very local extent, being only about eighty feet wide, one and a half miles long, and from three to four feet thick. This was an isolated mass in the midst of sand or gravel. In all of the borings, many hundreds in number, no bones or wood have ever been found.